MULTIMEDIA UNIVERSITY

STUDENT ID NO

Table No: _____

Course: _____

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2015/2016

TSE2451/TSR2701 – SOFTWARE REQUIREMENTS ENGINEERING

(All sections / Groups)

15 OCTOBER 2015
9:00 am – 11.00 am
(2 Hours)

Examiner 1 Signature: _____

Examiner 2 Signature: _____

Examiner 3 Signature: _____

Question	Mark
A	
B	
C	
D	
Total	

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 10 pages (including cover page) with 4 Sections only.
2. Attempt **ALL** questions in **SECTION A, SECTION B, SECTION C and SECTION D**. The distribution of the marks for each question is given.
3. Please write all your answers in the answer box associated with each question in this question paper. Submit this question paper at the end of the examination.

Section A

Fill in each blank with ONE word that best fits the meaning of the sentence as a whole.
(15 marks)

		Answer
A1)	Requirements engineering processes are dominated by human, (1. ___) and organisational factors because they always involve a range of (2. ___) from different backgrounds.	1. 2.
A2)	CASE [(3. ___)-(4. ___) Software Engineering] automated tools provide support for software engineering processes.	3. 4.
A3)	Management tools help manage a (5. ___) of requirements and support the management of (6. ___) to these requirements.	5. 6.
A4)	Conflicting or unrealizable requirements must be recognized, (7.___), communicated and brought to a (8.___) by the requirement engineer.	7. 8.
A5)	(9.___) of requirements is a (10.___) action with stakeholders partly done at the stakeholders site.	9. 10.
A6)	(11. ___) has high number of participants in target audience, but not suited for (12. ___) questions.	11. 12.
A7)	(13. ___) techniques have many ideas in a short time, and appropriate for identification of (14. ___) and features.	13. 14.
A8)	(15. ___) technique has low resource usage, encourages costs reduction, and does not have to rediscover the wheel.	15.

Continued...

Section B

Identify **the choice that best** completes the statement or answers the question.

(15 marks)

Answer

1) The responsibilities of a stakeholder do not include: [ ]
   A. requirements concerning prioritization of importance
   B. requirements concerning estimation of cost
   C. requirements concerning the checking of quality
   D. requirements concerning the formulation of functionality

2) Which of the following piece of information should NOT feature as part of a minimum in a stakeholder list? [ ]
   A. Function (role)
   B. Aims and interests in relation to the project
   C. Age
   D. Area of knowledge

3) Which of the following is NOT a perspective that is often applied when specifying systems? [ ]
   A. Functional perspective
   B. Structural perspective
   C. Behavioural perspective
   D. Organisational perspective

4) Certain factors must be taken into consideration when introducing requirements management tools. Which of the following is NOT a factor affected by this? [ ]
   A. Required resources
   B. Programming process
   C. Training costs
   D. Selection of pilot project

Continued...

5) A configuration of requirements is a snapshot selected from the requirements catalogue. Which of the following characteristic is FALSE about a configuration of requirements?

A. The requirements contained in the configuration have a good realization time.
B. The requirements contained in the configuration are unambiguous.
C. The requirements contained in the configuration are in a technically logical context.
D. A configuration is clearly identified.

6) Which of the following is a NOT a traceability relationship that should be realized whenever possible?

A. Interdependency between requirements
B. References between requirements and test cases
C. References between requirements and goals
D. Guideline references to requirements

7) Which of the following is NOT an attribute needed for management of the requirements?

A. Clear and constant identification
B. Originator (Source)
C. Technical contact person
D. Version

8) An important attribute of a requirement is clear and unambiguous identification. Which of the following statement is FALSE concerning the purpose of clear identification?

A. It enables the creation of a clear communication basis.
B. It enables the entire scope of the specification to be assessed.
C. It enables the creation of references between requirements.
D. It enables traceability to other development artifacts (or deliverables).

Continued...

9) The Kano model describes that dissatisfiers (basic factors) are hard to find. What is the best elicitation technique for dissatisfiers? [ ]
   A. Interview
   B. Field observation
   C. Questionnaire
   D. Brainstorming

10) Which aspect most likely to be taken into consideration in the choice of suitable elicitation techniques for an administrative software system? [ ]
   A. Tools applied
   B. Age of the stakeholders
   C. Availability of the stakeholders
   D. Business of the system is to be applied in

11) The following are non-functional constraints for critical systems EXCEPT [ ]
   A. Performance
   B. Delivery
   C. Reliability
   D. Security

12) For the assessment of requirements, various assessment criteria are used. Which of the following quality aspects does NOT pertain to the 'documentation' quality criteria? [ ]
   A. Conformity
   B. Understandability
   C. Unambiguity
   D. Feasibility

Continued...

13) The Kano model is used as a form of requirements categorization. Which of the following DOES NOT form part of the Kano model? [ ]

A. Basic factors
B. Performance factors
C. Excitement factors
D. Financing factors

14) What is the key advantage of using questionnaires for requirements elicitation? [ ]

A. Statistically relevant statements on requirements can be made.
B. Questionnaires provide insights on delighters (excitement factors).
C. Questionnaires provide insights on dissatisfiers (basic factors).
D. Questionnaires allow for validating the participants' understanding.

15) A given elicitation technique only provides the desired effect under suitable environment conditions. Which of the following is NOT a benefit when using a questionnaire? [ ]

A. A large number of participants can take part.
B. Enables the participant's understanding to be checked.
C. Enables the statistically relevant statements about requirements.
D. Can be deployed worldwide.

Continued .....

Section C

CardioCare is a company exploring wearable technology, which is currently associated with two product categories – health trackers and smart watches. Wearables are beginning to show their potential in other areas as well. Ultimately, they are likely to enter into many areas of our daily existence.

Everyone controls their own health care, collecting huge quantities of personal data with the help of smart-phones, gadgets, and apps. With CardioCare system, clients start seeing their data on their smart-phone screen. Think of your data freely flowing to your own device: You will know much more about yourself, what is working, what is off track.

Based on the scenario above, answer questions C (1) to C (4):

1. Many systems engineering problems are originated from problems with the system requirements. Explain how you can use THREE common 'requirements' problems that arise from the above company system context.

(3 marks)

Answer

2. Name the FOUR sources of requirements which are found in the above context.

(2 marks)

Answer

Continued…

3. Describe the SEVEN system engineering activities giving a diagram illustration on how it can be applied in fulfilling the aim of the above mentioned company.

(8 marks)

Answer

4. "Computer-based systems such as the above working environment fall into two broad categories, which are User-Configured systems, and Custom systems." Do you agree and why?

(2 marks)

Answer

Continued...

Section D

1. Thomas wanted to draw the interactions between a user, a web browser, an administrator, and the server it contacts. Thus, he drew an interaction line between the actors as shown in Figure 1. However, this use case diagram is wrong. Draw a correct solution for showing all interactions between actors. Among the use cases include '*start/stop server*', '*serve page*', '*set target URL*', and '*receive page*.' Note: URL means Unified Resource Link, in other words the address of the web site.

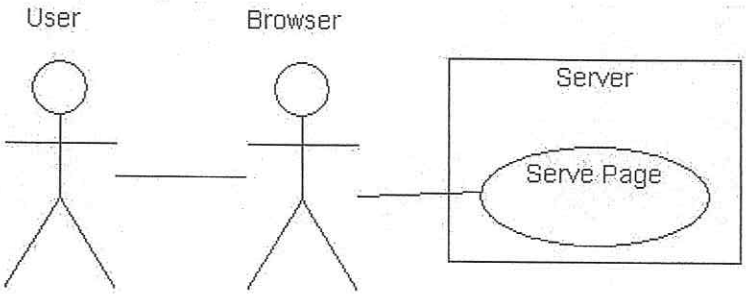

Figure 1: Use Case Diagram

(7 marks)

Answer

Continued...

2. Draw an entity relationship diagram based on the following requirements:
   a) The football team contains 8 clubs with up to 40 players per club.
   b) One player can have a contract only with one club.
   c) Each player has a home address and nickname.
   d) Each club is financed by a sponsor.
   e) A sponsor finances only one club.

(8 marks)

Answer

End of Page